1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3	EU - Type Examination Certificate Number:	**Baseefa16ATEX0138**
4	Product:	**K5L & K7L Switchbox**
5	This certificate is held by:	**Topworx Incorporated**
6	Address:	**3300 Fern Valley Road, Louisville, Kentucky 40213. USA**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. GB/BAS/ExTR16.0260/00

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012 EN 60079-31: 2014

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following :

⟨Ex⟩ **II 2GD Ex ia IIC T6 / T5 Gb**
Ex tb IIIC T85°C / T100°C Db (See Schedule for Code Variations)

SGS Baseefa Customer Reference No. **2191** Project File No. **16/0281**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx and the Supplementary Terms and Conditions accessible at http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Baseefa Limited
Rockhead Business Park, Staden Lane,
Buxton, Derbyshire SK17 9RZ
Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601
e-mail baseefa@sgs.com web site www.sgs.co.uk/baseefa
Registered in England No. 4305578.
Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa16ATEX0138**

15 Description of Product

The K7L Switchbox comprises an aluminium or stainless steel enclosure containing up to two sets of terminals blocks, up to four voltage free switches and up to four certified proximity sensors in any combination and interconnection facilities for remote mounted intrinsically safe equipment connections. The K5L Switchbox is of a similar construction to the K7L but is housed in a low profile enclosure.

Both K5L & K7L versions may include an optional mechanical visual indicator. External electrical connections are made using screw terminals via up to four tapped holes.

Models of the equipment with a 'D' in the model number are gas and dust certified. The installation of the external connections and plugging of the unused entries in these variants must be carried out using appropriately certified IP6X cable glands and blanking plugs.

Models of the equipment marked with a 'G' in the model number are only gas certified. The installation of the external connections and plugging of the unused entries in these variants must be carried out using appropriate cable glands and blanking plugs with a minimum ingress protection of at least IP20. These variants may also be optionally fitted with plug and socket connections fitted to the entries of the enclosure.

The following models of the K5L & K7L Switchbox are covered by this certificate: -

Dual Gas & Dust Certified 'D' Models

Models of the K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:

Model No. S-M-D-IEC
No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-20°C ⩽Ta ⩽+70°C)					
VF Contact	U_i = 28V	I_i = 120mA	P_i = 1.3W	C_i = 0	L_i = 0	

Models of the K5L & K7L Switchbox containing only proximity sensors are designated as follows:

Model No. S-F-D-IEC
No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-20°C ⩽Ta ⩽+70°C)					
Each Sensor	U_i = 15V	I_i = 50mA	P_i = 0.12W	C_i = 145nF	L_i = 340µH	

Model No. S-F-D
No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-20°C ⩽Ta ⩽+70°C)					
Each Sensor	U_i = 15V	I_i = 50mA	P_i = 0.12W	C_i = 145nF	L_i = 340µH	

Model No. S-P-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T5 Gb (-25°C ⩽Ta ⩽+57°C) Ex tb IIIC T100°C Db (-25°C ⩽Ta ⩽+57°C) Ex ia IIC T6 Gb (-25°C ⩽Ta ⩽+42°C) Ex tb IIIC T85°C Db (-25°C ⩽Ta ⩽+42°C)
Each Sensor	U_i = 16V I_i = 52mA P_i = 0.169W C_i = 100nF L_i = 550µH

Model No. S-PH-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-25°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-25°C ⩽Ta ⩽+70°C)
Each Sensor	U_i = 16V I_i = 25mA P_i = 0.034W C_i = 100nF L_i = 550µH

Model No. S-T-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-20°C ⩽Ta ⩽+70°C)
Each Sensor	U_i = 20V I_i = 60mA P_i = 0.08W C_i = 250nF L_i = 350µH

The following versions of the K5L & K7L Switchbox operate at lower ambient temperatures. These versions are to be designated as Low Temperature K5L & K7L Switchboxes.

Models of the Low Temperature K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:

Model No. S-LM-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-50°C ⩽Ta ⩽+70°C)
VF Contact	U_i = 28V I_i = 120mA P_i = 1.3W C_i = 0 L_i = 0

Models of the Low Temperature K5L & K7L Switchbox containing only proximity sensors are designated as follows:

Model No. S-LF-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+60°C) Ex tb IIIC T85°C Db (-40°C ⩽Ta ⩽+60°C)
Each Sensor	U_i = 15V I_i = 50mA P_i = 0.12W C_i = 150nF L_i = 150µH

Model No. S-LP-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T5 Gb (-40°C ⩽Ta ⩽+60°C) Ex tb IIIC T100°C Db (-40°C ⩽Ta ⩽+60°C) Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+45°C) Ex tb IIIC T85°C Db (-40°C ⩽Ta ⩽+45°C)
Each Sensor	U_i = 16V I_i = 52mA P_i = 0.169W C_i = 120nF L_i = 200µH

Model No. S-LPH-D-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+70°C) Ex tb IIIC T85°C Db (-40°C ⩽Ta ⩽+70°C)
Each Sensor	U_i = 16V I_i = 25mA P_i = 0.034W C_i = 120nF L_i = 200µH

Model No. S-LP-D-50-IEC

No indicator or indicator ⩽20cm^2 surface area

	Ex ia IIC T5 Gb (-50°C ⩽Ta ⩽+60°C)				
⟨Ex⟩ II 2 GD	Ex tb IIIC T100°C Db (-50°C ⩽Ta ⩽+60°C)				
	Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+45°C)				
	Ex tb IIIC T85°C Db (-50°C ⩽Ta ⩽+45°C)				
Each Sensor	U_i = 16V	I_i = 52mA	P_i = 0.169W	C_i = 70nF	L_i = 150µH

Model No. S-LPH-D-50-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 GD	Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+70°C)				
	Ex tb IIIC T85°C Db (-50°C ⩽Ta ⩽+70°C)				
Each Sensor	U_i = 16V	I_i = 25mA	P_i = 0.034W	C_i = 70nF	L_i = 150µH

Model No. S-LT-D-IEC

No indicator or indicator ⩽20cm^2 surface area

	Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+70°C)				
⟨Ex⟩ II 2 GD	Ex tb IIIC T85°C Db (-40°C ⩽Ta ⩽+70°C)				
Each Sensor	U_i = 20V	I_i = 20mA	P_i = 0.20W	C_i = 150nF	L_i = 150µH

Gas only Certified 'G' Models

Models of the K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:

Model No. S-M-G-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 G	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C)				
VF Contact	U_i = 28V	I_i = 120mA	P_i = 1.3W	C_i = 0	L_i = 0

Models of the K5L & K7L Switchbox containing only proximity sensors are designated as follows:

Model No. S-F-G-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 G	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C)				
Each Sensor	U_i = 15V	I_i = 50mA	P_i = 0.12W	C_i = 145nF	L_i = 340µH

Model No. S-F-G

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 G	Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C)				
Each Sensor	U_i = 15V	I_i = 50mA	P_i = 0.12W	C_i = 145nF	L_i = 340µH

Model No. S-P-G-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 G	Ex ia IIC T5 Gb (-25°C ⩽Ta ⩽+57°C)				
	Ex ia IIC T6 Gb (-25°C ⩽Ta ⩽+42°C)				
Each Sensor	U_i = 16V	I_i = 52mA	P_i = 0.169W	C_i = 100nF	L_i = 550µH

Model No. S-PH-G-IEC

No indicator or indicator ⩽20cm^2 surface area

⟨Ex⟩ II 2 G	Ex ia IIC T6 Gb (-25°C ⩽Ta ⩽+70°C)				
Each Sensor	U_i = 16V	I_i = 25mA	P_i = 0.034W	C_i = 100nF	L_i = 550µH

Model No. S-T-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-20°C ⩽Ta ⩽+70°C)
Each Sensor U_i = 20V I_i = 60mA P_i = 0.08W C_i = 250nF L_i = 350µH

The following versions of the K5L & K7L Switchbox operate at lower ambient temperatures. These versions are to be designated as Low Temperature K5L & K7L Switchboxes.

Models of the Low Temperature K5L & K7L Switchbox containing only voltage free (VF) contacts are designated as follows:

Model No. S-LM-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+70°C)
VF Contact U_i = 28V I_i = 120mA P_i = 1.3W C_i = 0 L_i = 0

Models of the Low Temperature K5L & K7L Switchbox containing only proximity sensors are designated as follows:

Model No. S-LF-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+60°C)
Each Sensor U_i = 15V I_i = 50mA P_i = 0.12W C_i = 150nF L_i = 150µH

Model No. S-LP-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T5 Gb (-40°C ⩽Ta ⩽+60°C)
Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+45°C)
Each Sensor U_i = 16V I_i = 52mA P_i = 0.169W C_i = 120nF L_i = 200µH

Model No. S-LPH-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+70°C)
Each Sensor U_i = 16V I_i = 25mA P_i = 0.034W C_i = 120nF L_i = 200µH

Model No. S-LP-G-50-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T5 Gb (-50°C ⩽Ta ⩽+60°C)
Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+45°C)
Each Sensor U_i = 16V I_i = 52mA P_i = 0.169W C_i = 70nF L_i = 150µH

Model No. S-LPH-G-50-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-50°C ⩽Ta ⩽+70°C)
Each Sensor U_i = 16V I_i = 25mA P_i = 0.034W C_i = 70nF L_i = 150µH

Model No. S-LT-G-IEC
No indicator or indicator ⩽20cm^2 surface area
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb (-40°C ⩽Ta ⩽+70°C)
Each Sensor U_i = 20V I_i = 20mA P_i = 0.20W C_i = 150nF L_i = 150µH

Where interconnection facilities for remote mounted intrinsically safe equipment connections are fitted, the input parameters for these terminals for all models are as follows:

U_i = 30V

Details of these terminal arrangements including interconnections are to be detailed on an internal label within the apparatus.

16 Report Number

GB/BAS/ExTR16.0260/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	LVD type requirements
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
Documents as listed in Certificate No. Baseefa03ATEX0336 Issue 13				
C13907	1 of 4	1	14.11.16	Intrinsically Safe IECEx Certified Topworx K5/K7 Series Switchbox
C13907	2 of 4	1	14.11.16	Certification Label Topworx K5/K7 Series Switchbox
C13907	3 of 4	1	14.11.16	Certification Label – II 2 G Topworx K5/K7 Series Switchbox
C13907	4 of 4	1	14.11.16	Intrinsically Safe IECEx Certified Product with Optional Connector(s)

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 16.0107 Iss. 0